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ABSTRACT

Enrollment management is defined as coordinated effort to influence the size and characteristics of an institution's student body through recruitment, admissions, pricing, financial aid, advising, and other policy choices. Enrollment managers must understand the forces that influence individual decisions about college choice and persistence. One enrollment management model analyzes student enrollment in a six-stage linear student flow model, from initial inquiry, through applications, enrollment, persistence, completion, and continuing to post-graduate follow-up. For each of these six stages, two types of information are needed: performance monitoring indicators; and in-depth policy research and analysis. To implement a framework, an institution should consider the following five steps: (1) review the literature on college-choice, student/institution fit, and student retention; (2) develop a performance monitoring indicator system; (3) construct longitudinal cohort tracking files; (4) identify patterns in aggregate student behavior; and (5) conduct survey and focus group research to illuminate key student decision points. After reviewing each of these five steps in depth, this report describes the following enrollment management research approaches utilized at an urban community college: focus group study of delayed-entry students; geo-demographic market analysis; telephone survey of non-returning students; and patterns of attendance analysis. For each research approach, the types of questions addressed, and the utilization of results are explored. A 23-item bibliography is included. (PAA)

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An Information Infrastructure for Enrollment Management: Tracking and Understanding Your Students

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Introduction

Focused and timely information is essential to successful enrollment management. Enrollment management can be defined as a coordinated effort to influence the size and characteristics of an institution's student body, through recruitment, admissions, pricing, financial aid, advising, and other policy choices.

Conceptually, enrollment management links research on individual college choice, student-institution fit, and student retention. Although it is an organizational construct, enrollment management is founded on information, largely derived from institutional research and policy evaluation (Hossler and Kemerer, 1986). To be successful, enrollment managers must understand the forces that influence individual decisions about college choice and persistence. This micro-level understanding is prerequisite to answering institutional policy-level questions. It is useful to analyze student enrollment in a linear student flow model, from initial inquiry through application, enrollment, persistence, completion, and continuing to post-graduate follow-up. Enrollment managers need answers to numerous questions at each stage of student experience with the institution. For example:

- How widely known is the college? How do prospective students view the college? What other institutions are considered by prospective students?
- How can we increase the size of the applicant pool? How can we attract the students we would most like to enroll?
- How can we improve yield? How effective are our existing recruitment activities? What factors differentiate our college from its closest competitors and influence admitted students' final choices?
- What influence does financial aid have on student decisions to enroll and persist? What is the perceived campus culture, and what influence does it have on retention and attrition?

- What proportion of a freshman class persists to graduation? Do any subgroups exhibit significantly higher than average attrition? Why do some students persist while others do not?

- How successful are our alumni in their post-graduate endeavors? What proportion remain involved with the institution? What characteristics describe alumni donors?

This sampling of student decision and institutional policy questions captures the comprehensive, long-range nature of an enrollment management program. The results of recruitment are measured not just in terms of the number and characteristics of new students who enroll but by the number who become well-adapted, successful students and productive alumni. The encompassing reach of enrollment management also suggests how difficult it can be to implement successfully. Larger universities, where enrollment management responsibilities may be widely dispersed, pose particularly challenging tasks of coordination and monitoring. Indeed, research by Dolence (1989-90) suggests that over half of the institutions that try to establish enrollment management programs fail.

Five Steps to Success

One factor contributing to the low rate of success of enrollment management programs is the insufficient information base supporting them. This essay presents a framework for providing the information needed for successful enrollment management. Figure 1 suggests that two types of information are needed at all six stages of enrollment management: performance monitoring indicators and in-depth policy research and analysis. Implementing a framework to provide this information requires five steps:

1. Review the literature on college choice, student-institution fit, and student retention.

2. Develop a performance monitoring indicator system.

3. Construct longitudinal cohort tracking files.

4. Identify patterns in aggregate student behavior.

5. Conduct survey and focus group research to illuminate key student decision points.

Review the Literature

The first step in implementing an effective information base for enrollment management is to review the pertinent national literature. It falls into two broad types. First is the recent body of work explicitly concerning enrollment management as an organizational construct or process. Written within the past ten years, this literature is largely responsible for the spread of the concept and language of enrollment management. A brief reading of this

material will help you focus on the goals and activities associated with successful enrollment management. The second and more diverse body of literature consists of the research and policy studies that form the necessary information infrastructure supporting the successful implementation of an enrollment management process. Research into student college choice, student-institution fit, pricing and financial aid, student attrition, and other related topics can all be considered part of the enrollment management literature. Understanding student behavior is prerequisite to influencing it. You need to have some familiarity with the national findings to help you decide what institution-specific research you need, how best to design your enrollment management studies, and how to interpret what you find.

Claffey and Hossler (1986) have described effective enrollment management as holistic in vision, proactive in stance, informed in decisionmaking, flexible and tolerant in climate, and led by the highest levels of administration. Among the necessary conditions for effective enrollment management, however, they argued that information was paramount:

> Planning and evaluation are at the heart of an enrollment management system, but the single most critical element in all of this effort is accurate, timely, usable information. Thus, our ability to influence our enrollments to any degree is a direct function of the information...available. (p. 106.)

Hossler (1987) argued that in practice enrollment management was in danger of becoming simply a new term for the work of admissions offices. Would-be enrollment managers were not developing the requisite knowledge base in student college choice, student-institution fit, student retention, the impact of financial aid, and other research, but rather were changing titles and rearranging organizational charts. This is where the second broad category of enrollment management literature, plus local institutional research, becomes essential.

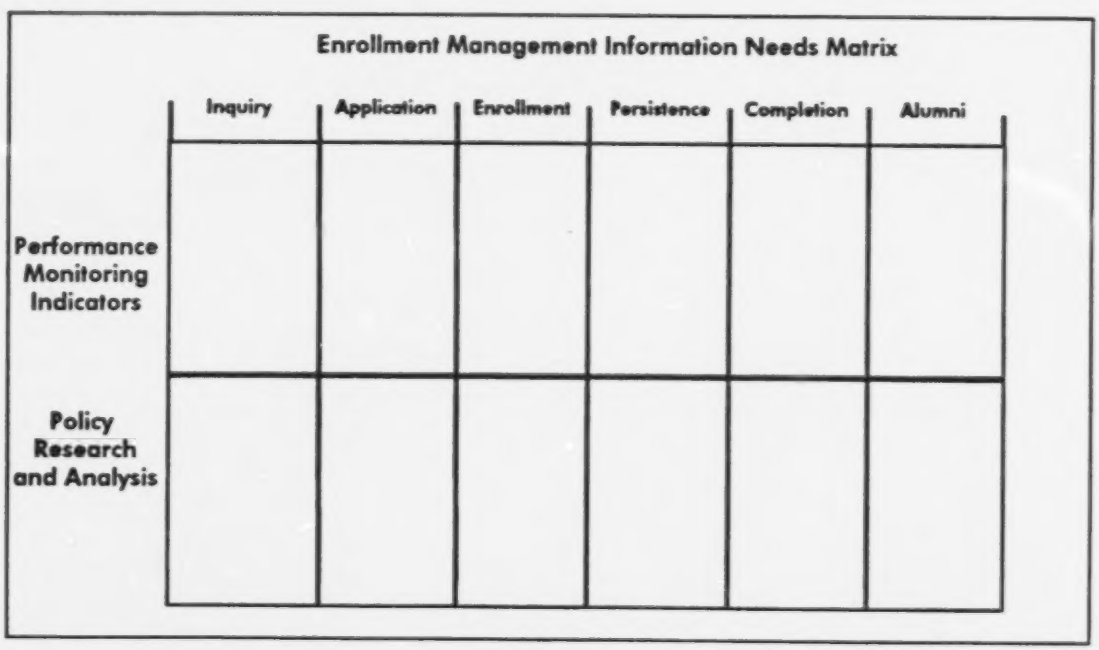

Figure 1

A growing body of literature exists to provide enrollment managers with a foundation of knowledge for interpreting their own campus research and experience. The recruitment literature includes research on student college choice (Litten, Sullivan, and Brodigan, 1983; Zemsky and Oedel, 1983; Lay and Endo, 1987), student-institution fit (Williams, 1986), and the impact of pricing and financial aid (Litten, 1984; Leslie and Brinkman, 1987; Huff, 1989). The student persistence literature includes several useful reviews and anthologies (e.g., Pascarella, 1982; Tinto, 1987) as well as innumerable case studies. In addition to the findings of educational research found in the scholarly literature, the enrollment manager relies heavily on institution-specific information. Useful articles on using institutional research for enrollment management include Davis-Van Atta and Carrier (1986) and Glover (1986). This essay presents one approach to organizing institutional research support for enrollment management that has proven successful at both a selective liberal arts college and an open-door community college.

Develop a Performance Monitoring Indicator System

The information needs of the enrollment manager fall into two categories: performance monitoring indicators (PMIs) and policy research and analysis. To track and evaluate the implementation and success of an enrollment management program, specific quantifiable measures are needed:

> Without the development of an effective performance indicator system, enrollment management, as a truly innovative concept, will diminish in stature and will be viewed by many as just another administrative black hole – another office spending money without a clear definition or purpose. (Costello, 1989, p.70).

The coordinating and integrating functions of enrollment management are facilitated by the availability of a comprehensive set of agreed-upon performance monitoring indicators. The PMIs are typically simple counts or ratios that report the status of enrollment at a point in time. Ideally the PMIs are developed with the consultation of the offices responsible for each stage of the enrollment process, and are used by the enrollment manager to evaluate the performance of each unit as well as to oversee the broader institutional enrollment picture.

Most colleges track at least some PMIs for the recruitment phase (encompassing the first three stages of student decision, namely inquiry, application, and enrollment). Key PMIs may be tracked daily during the application and registration period. An enrollment management plan would have established targets or expectations for each of these indicators. At a minimum, the enrollment management team should have clear expectations about the number of applications, offers of admission, and resulting enrollments anticipated for the planning term. The mix of full- and part-time students, and the credit hours or full-time-equivalents they generate would usually have been forecast for budget planning purposes and also routinely tracked during the registration period. Since enrollment management concerns the characteristics as well as magnitude of enrollment, other attributes, such as the SAT score distribution of applicants, admits, and enrollees, may be monitored. The racial/ethnic composition at each stage may be reported to help in monitoring achievement of diversity goals. The distribution of enrollment by college, program, discipline, class location and time would be monitored for departmental faculty and facilities planning.

Performance monitoring indicators are also useful for evaluating the student retention phase, broadly defined to include not only student persistence to graduation but also postgraduate association with the institution, as active alumni, contributors, or continuing education students. Among the PMIs for this phase might be retention rates of various student groups to their second semester, since this is often a time of high attrition, and persistence rates to sophomore, junior, and senior status. Graduation rates for different populations, such as athletes and racial/ethnic groups, might be routinely reported. Finally, student outcomes indicators such as the number transferring or entering graduate school, the number passing licensure examinations, the percent obtaining program-related employment, and the percent satisfied with their college experience might be tracked.

Much of the data needed for monitoring the performance of the enrollment management effort come directly from the information gathered from student applications and registrations transactions. The typical campus student information system contains both term enrollment and student history or transcript files that together include demographic, course enrollment, and performance data useful for enrollment monitoring purposes. Special record-keeping procedures may need to be implemented beyond those commonly in place, however. For example, a system may need to be implemented in admissions for tracking mail and phone inquiries. Surveys may be needed to gather background information beyond that required in the college application. Follow-up surveys will be necessary to learn post-enrollment outcomes.

While collecting the needed information is often not difficult, the more frequent problem to its successful application is its organization. Standard transcript files and frozen term files are not ideal for student flow studies. Transcript files contain elements that are periodically updated, with old values usually written over and lost. Term files are often archived off-line and pulling selected elements from several such files can involve extensive programming and media manipulation. Survey research may have been conducted in isolation from record-based studies and survey data stored in separate datasets. How data are organized greatly affects their usefulness.

Construct Longitudinal Cohort Tracking Files

Since enrollment management encompasses student experiences with an institution from inquiry to post-graduation, data systems parallelling this student flow continuum are most useful. In place of discrete files established for other purposes, most institutions will benefit from the construction of separate longitudinal cohort files for enrollment management analyses. (For useful overviews, see Ewell, Parker, and Jones, 1988; Bers, 1989; Palmer 1990). Free-standing tracking files for selected entering cohorts of students preserve key data values and facilitate data analysis. The data elements in such files fall into three broad categories. First are student attributes such as demographic and academic background variables usually collected as part of the application process. Next are student progress variables recorded each term, such as credit hours attempted and earned and term grade point average. Finally are outcome measures for graduates and those who leave without completing a program. These may include further education and employment indicators. Because tracking numerous cohorts simultaneously is complex, and because there usually is little variation in successive years (unless substantial changes in institutional policies or entering student characteristics have occurred), it is generally sufficient to track classes entering every third year. Most institutions will track only cohorts entering in fall terms, though spring

or summer entrants if substantial in number or notably different in characteristics may warrant separate tracking. Students should be tracked for six to eight years to allow time for part-time students and stop-outs whose attendance is interrupted to graduate (Ewell,1987).

Identify Patterns in Aggregate Student Behavior

The performance monitoring indicators will provide a clear overview of what is happening with campus enrollment. The tracking system should be used to supplement the information gleaned from the PMI summary statistics. The goal is to discern patterns in the aggregate student behavior that will guide further in-depth research (Terenzini, 1987). A good approach is to develop a standard analysis yielding the student behavioral data of most interest. This can be run for several cohorts to produce trend data, and for subgroup analysis within a given cohort. For example, to assess student progress toward a degree, total cumulative credit hours earned at the end of each term could be analyzed. The median credits earned, the distribution of students in credit hour ranges, or the percentage of students earning a specified minimum number of credits might be reported. To illustrate, suppose 35 percent of all the students entering your college in fall 1990 had earned at least 30 credits after two years. Assume this same analysis been conducted for prior entering cohorts, and that the percentage earning at least 30 credits after two years had steadily declined from over 50 percent for students entering in fall 1986. This negative trend should alert the institution to a need for further study of why student progress toward a degree is slowing. Similarly, analysis of this same indicator for subgroups of students might prove enlightening. Students needing remediation, attending part-time, or interrupting their studies ("stop outs") would probably accumulate credits at a slower pace than better prepared students attending full-time without interruption. Perhaps the decline in the overall percentage reflects an increase in the proportion of students needing remediation, attending part-time, or interrupting their studies.

In designing a tracking system, try to anticipate future research needs. In addition to the obvious demographic variables, ensure that data elements are incorporated in the tracking file identifying subgroups of students of research interest at your institution. While it is usually possible to go back to original files to obtain data whose need was not foreseen, this can be cumbersome. It is better to anticipate likely research questions and include the requisite data elements from the start. These may include identifiers for remedial students, non-native English speakers, participants in special programs, athletes, scholarship recipients, or others groups of special concern. If this is done, than it is relatively easy to examine student attendance patterns and outcomes for subgroups by running the standard analysis against the appropriate variables.

Conduct Survey and Focus Group Research

Along the continuum from initial inquiry through post-graduate relationship with the institution, students face continual decisions: whether to apply, whether to enroll, whether to continue (a decision made each term). To influence student enrollment patterns, it is essential to know as much as possible about the key student decision points: when the crucial decisions are made, what factors influence the decisions, how the institution might influence the decisions. While the PMI tracking system can help identify the key points, more in-depth research and analysis are needed for an adequate understanding to inform policymaking.

Survey research can be most useful when designed and implemented to add to information yielded by the tracking system. Administer surveys to investigate student motivations, attitudes, and decision-making processes at key points in their college experience: at entry, after their first semester, immediately after they leave. Add key survey response data to the cohort file, or maintain separate files for survey data that can be easily linked to the longitudinal data.

Qualitative research findings such as those learned in focus groups can add insights into student behavior beyond those reported in typical mail survey responses. They can provide a reality check: student decision processes may be more tentative and confused than the responses elicited by multiple-choice survey questions suggest. Examples of focus group applications to enrollment management include assessing institutional image and position compared to the competition, evaluating promotional materials, learning the special needs of particular student groups, and generating new ideas for improving or adding services.

Examples of Enrollment Management Research

In this section, four examples of enrollment management research will be presented to illustrate the kinds of issues and approaches to studying them that characterize a comprehensive enrollment management information system. The research was conducted at a large, open-admissions community college in suburban Washington, D.C. Reflecting the county it serves, the college has a majority black student population. Three-fourths of the students attend part-time; half intend to transfer to a four-year college or university. The research needed at a senior institution would differ in scope and emphasis. Community colleges typically focus on a well-defined local market, characterized by considerable demographic and socio-economic diversity. The students who attend have a wide range of academic abilities and needs. Four-year institutions usually draw students from a larger geographic area, but the resulting student body is generally more homogeneous. The recruitment and retention research needed at each institution will reflect the individual circumstances, clientele, and mission of the campus involved. The purpose in describing these examples is to demonstrate how enrollment management research can address specific questions, and to show how the results can be used.

Focus group study of delayed-entry students. Nearly two-thirds of the high school graduates of the county served by the community college do not go to college the year immediately after high school graduation. While colleges have had success serving older adult students, little has been written about younger, "delayed entry" students – those starting college one to three years after high school. A series of focus groups coordinated by the college's institutional research office revealed that such students saw themselves as a unique group, more mature and motivated than 18-year-olds yet closer to them in age and interests than to "adult" students. Most had postponed college to continue working in jobs begun while in high school. Jobs and careers provided a sense of purpose to these students; many cited job skill development or a desire to change careers and leave dead-end jobs as their reasons for entering college. These students described a sense of pride they had from paying for their college education, compared to 18-year-olds whose parents were footing the bill. They linked this to their motivation to succeed; without exception, they felt they were more committed to their studies than younger students. They described initial feelings of doubts about their abilities to keep up with the traditional students just out of high school, but found these

fears quickly dispelled in their first classes. (The lack of a standardized admissions test requirement was a factor for many in choosing the community college.) The time out of school provided motivation, resources, and confidence to start college. Departments were urged to schedule more night and weekend classes and to ensure that full course sequences could be completed by students attending in limited time frames. Marketing implications from the focus group research included targeted messages to this specific group, emphasizing a personal, nonintimidating image of the college, a career advancement perspective, and an appeal to the pride and maturity of the youngest set of "adult" students.

Geo-demographic market analysis. Though the community college primarily serves the residents of a single county, its service population is quite diverse. With a larger population than five states, the county is an aggregation of many, quite different, neighborhoods. Reliance on county-wide Census and other data for planning purposes can be misleading, obscuring pockets of prosperity and pockets of poverty. The research office decided to employ lifestyle cluster analysis, a geo-demographic tool increasingly used in the private sector but only in its infancy in higher education applications. The underlying premise is that people tend to live, or cluster, in neighborhoods that reflect their economic and social values ("birds of a feather flock together"). Geo-demographic enrollment analysis enables a campus to know more about who its current students are and where to find more of them. Although cluster analysis systems based on national data can be purchased, the college decided to develop its own. For universities that draw students from all over the country, the national cluster systems are appropriate choices. For more localized, commuter schools such as community colleges and regional universities, a custom cluster system developed internally offers several advantages. By avoiding large licensing fees, a custom system will generally cost less than using a national system. Since it is generated using local rather than national data, the custom system promises a more precise and accurate representation of the college's service area. Lifestyle factors particularly important to college planning, such as age and educational levels, can be statistically weighted to produce clusters with enhanced sensitivity to college applications. Using cluster routines included in the office's statistical analysis software, and a comprehensive set of local demographic data (available commercially or from governmental sources), staff in institutional research created a custom lifestyle cluster analysis system that identified 24 distinct neighborhood types within the county (Boughan, 1990). These neighborhood types varied in terms of their socioeconomic status, ethnic composition, housing stock, family life cycle stage, and other variables. Residents of these different neighborhoods had varied lifestyles, aspirations, and educational needs. By geo-coding student address lists – identifying which Census tract and thus which cluster each student resided in – the research office was able to perform a new kind of enrollment analysis based on the lifestyle cluster typology.

Contrary to expectations, the analysis revealed that the college's highest penetration was in the upscale clusters. The clusters differed in their mix of credit and noncredit student contribution, and in the coursetaking choices of their residents. For example, on the noncredit side, factor analysis revealed seven product themes (e.g., career exploration, high technology, creative impulse) within the overall course mix; these product themes, in turn, attracted enrollments from distinct sets of neighborhood clusters. The cluster typology was also used to investigate student outcomes on the credit side. The clusters grouped into six outcome patterns. For example, residents of mostly white, middle class, blue collar neighborhoods had the highest A.A. degree completion rate, but very low rates of transfer to senior institu-

tions. Residents of mostly black, middle-class clusters had relatively low A.A. degree attainment rates but high rates of transfer to four-year colleges. The county's largest cluster, characterized by well-educated young singles and new families, living in garden apartments and at the beginning of their professional careers, had a unique outcome pattern of low rates of graduation and transfer but an extraordinary rate of continuing enrollment. Since this cluster already contains a high percentage of college graduates, it is likely that many of its residents were using the community college for job skill upgrading on a recurring basis. The geodemographic market information, processed through the custom lifestyle cluster analysis, yielded a wealth of new insights about the county and how its residents were using the community college. Combining the precision of Census tract socioeconomic data with the enrollment and achievement histories available on student databases produced an information resource of great analytical and operational promise. The college is currently applying what it has learned to the development of targeted marketing strategies.

Telephone survey of non-returning students. An eight-year longitudinal analysis discovered that over a quarter of the college's new fall entrants did not return for a second term. Why did so many students – over a thousand each fall – discontinue their studies after only one semester? What could the college do to influence more to continue? To address these issues, a telephone survey of fall entrants who did not return for classes the following spring was conducted. A phone survey was chosen to overcome the problems of poor response rate and response bias likely with a mail survey of this population. The study was designed and overseen by the institutional research office. To reduce costs, college staff were trained to conduct the interviews. Nearly 350 interviews were completed. Four in ten respondents gave employment-related reasons for discontinuing their studies. Nearly a third said that a lack of time prevented them from continuing. Other major reasons given for not returning included achievement of their goal at the college, transfer to a senior institution, and changes in family situations. When asked if the college could have done anything to have influenced them to continue, more than 80 percent said no. Those that said yes cited course availability and scheduling difficulties and lack of financial aid for part-time students. Eighty-five percent said they planned to return to the college. The survey affirmed that the high attrition at the end of the students' first term was not due to dissatisfaction with the college, but rather reflected the circumstances of the college's student clientele. The findings prompted a review of course scheduling and an investigation of aid possibilities for part-time students; but its major insight was that high attrition may be inherent given the nature of the population being served.

Patterns of attendance analysis. External agencies, including Congress, state legislatures, and regional accrediting bodies, are mandating disclosure of college graduation rates. Overall graduation rates at the community college were under 15 percent. The college needed to understand the factors producing such low rates in order to adequately explain them and design programs to improve them. Longitudinal cohort analysis provided a basic understanding of student patterns of behavior and identified several areas for further study. Tracking students over an eight-year period, it found that over a fourth of the first-time students entering in Fall 1980 attended only that one semester. Another third, the "stop-outs," had interrupted patterns of attendance. Students able to attend without interruption were much more likely to graduate. While only 12 percent of the entire cohort had graduated from the community college within eight years, a majority of those who attended for six or more consecutive semesters graduated. Many who discontinued study at the community college had

transferred to four-year colleges and universities. Analysis of graduation and transfer data for seven entering cohorts found increasing proportions of students transferring without first earning a community college award, simultaneous with a decline in A.A. degree attainment rates. Concurrently with these retrospective cohort studies, the research office initiated a project to follow the Fall 1990 entering class in depth. Following a contemporary group of students provides a better understanding of both the progress of current students and the impact of current institutional policies. Preliminary analysis after two terms found a quarter of the students had yet to earn a single credit. The median cumulative credits earned for the cohort was six. Less than two percent were on a pace to graduate within two years. The need to complete remedial courses was slowing credit accumulation for many. Three-fifths of the entrants completing placement testing needed remediation in at least one area of reading, composition, or mathematics. The extent of need was severe for many students. For example, after two semesters, only eight percent of those who needed and had taken remedial mathematics were ready to take the introductory credit mathematics course. Nearly four-fifths of the students had been placed in remedial mathematics courses in which successful completion would prepare them for another, higher level remedial course. Thus, the initial findings from the longitudinal cohort analysis prompted a more in-depth look at the remedial program at the college. Further tracking and program evaluation studies are underway.

Conclusion

Efforts to influence the magnitude and composition of campus enrollments depend on timely, accurate information. Data are needed for monitoring the ongoing enrollment picture, as well as for investigating in detail student decisionmaking concerning college choice and persistence. This essay has presented one way of organizing the information support that is essential for effective enrollment management. The framework advocated here has several advantages:

1. Its encompassing perspective forces an institution to look at student interaction with the college as a continual process through time, starting with an initial inquiry and continuing on after formal classwork ends.

2. It encourages development of enrollment targets, performance monitoring indicator systems, and longitudinal cohort tracking files for following and analyzing enrollment patterns – tools of great value.

3. It identifies areas of student behavior where institutional knowledge is insufficient, so that scarce research resources can be devoted to studying student decision points where the greatest insights may be uncovered.

4. It promotes collaboration between institutional research and enrollment management administrators, so that enrollment research will be directly focused on institutional policy issues.

5. It provides structure and direction to the enrollment analysis part of the institutional research agenda.

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